Buildings

Performance Task

Introduction

Teacher/Parent/Caregiver: This task is completed with your support to help students learn and succeed. In the *Products* section, the *Illustration* is used as a pre-assessment, often at the start of completing this task. The *Journal Prompt* is completed at the end of the task to allow the student to reflect on the learning.

A building is a structure that is made by putting pieces together. Buildings come in all shapes and sizes and are made from different materials. A building can be many things. For example, a building can be a house, a store or an office. In this task, you are an architect who is building a new house for a family. Before you start construction you will need to think carefully about what materials you will use.

Big Idea / Essential Questions

Big Idea

-Living things depend on their habitat to meet their basic needs.

-All living things rely on natural resources for survival(including people)

-All living things have basic needs: food, space, shelter and water in an arrangement suitable for survival.

Essential Questions

-What is the role of the habitat in providing the basic needs of an organism?

-What does a plant or animal need for food, shelter, and space and how does its habitat provide these needs in a suitable arrangement?

-How can we utilize the engineering design process to solve a problem?

G.R.A.S.P.

Goal

Your goal is to decide what materials are best to use to build a house.

Role

You are an architect who is helping to build a house for a family.

Audience

Your audience will be the members of the family who will live in this house. They will be interested to learn more about how their house is going to be built.

Situation

A building is a structure that is made by putting pieces together. Buildings come in all shapes and sizes and are made from different materials. A building can be many things. For example, a building can be a house, store or an office. In this task, you are an architect who is building a new house for a family. When you build, you will need to carefully consider what materials to use.

Products

1. Illustration

Suggested starting product:

Illustrate a picture of your house or the type of building you live in.
- What type of building do you live in?
- What does the building you live in look like?
- What type of materials were used to build your home?

Illustration-Buildings

Achievement Levels	1	2	3
Illustration (x1)	Illustration and title are unclear and are not connected to the concept.	Illustration and title are somewhat clear and demonstrate minimal connection to the concept.	Illustration and title are clear and demonstrate connection to the concept.

2. Materials Chart

You need to create a chart with a list of building materials and their properties. Examples of observable properties are the color, texture, shape, and size. Building materials such as bricks, stone, wood or metal have different observable properties. You will want to compare and contrast these different materials and their properties.

- What are building materials?
- What building materials do you see around you?
- Can you describe how different building materials look or feel?

Materials Chart-Buildings

Achievement Levels	1	2	3
Participation (x1)	Student did not participate in group discussion.	Student participated very little in group discussion.	Student was a very active participant and added valuable insight and information to group discussion.

Achievement Levels	1	2	3
Understanding (x1)	Student did not demonstrate an understanding of the different properties of building materials.	Student somewhat demonstrated an understanding of the different properties of building materials.	Student demonstrated a very thorough understanding of the different properties of building materials.
Articulation and Discussion (x1)	Student did not offer any descriptive words when describing various materials.	Student used a few descriptive words when describing various materials.	Student used many descriptive words to describe various materials.

3. Measurement Investigation

You are going to learn how to measure a standard room. Using your classroom as an example, you need to find the perimeter of the room by measuring the length each side. You may use a yardstick, ruler or a measuring tape to measure the classroom. Once you have measured the length of all four sides, you will find this perimeter by adding up each of these measurements. Imagine that the house you are building will have three rooms on the first floor. Using the example of your classroom, take that perimeter and pretend that each room of the first floor measures the same. Perhaps you can make a sketch that includes three rooms with these measurements. Now, can you add up the length of each wall to figure the total perimeter for all the rooms on your first floor? You will need to write an equation to solve this measurement investigation. You may use addition or multiplication to complete your work. You can also make a line plot to show your results.

- How do you measure a room?
- What is perimeter?
- What measurement materials could you use?
- What materials would use to build a room?
- How can you show your results as an equation or line plot?

Measurement Investigation-Buildings

Achievement Levels	1	2	3
Measuring Skills (x1)	Student was not able to participate in measurement investigation.	Student was able to somewhat use accuracy in their participation for the measurement investigation.	Student shows good participation and accuracy during measurement investigation.
Measurement Calculations and Sketch (x1)	Student did not complete measurement calculations and sketch.	Student was able to somewhat complete measurement calculations and sketch.	Student completed measurement calculations and sketch with ease and skill.
Organization (x1)	Measurement sketch was not neat or organized.	Measurement sketch was somewhat neat and organized.	Measurement sketch was very neat and organized.

4. Model

Using clay or another material available in your classroom, you are going to build a model of a house. Be sure to include the necessary elements of a structure such as a door, windows, roof, and walls.

Identify the names of the shapes that make up your house design.

- What is a model?
- What will your model include?
- What type of materials will actually be used to build this house?

- Why is it important to build a model before you begin a project?
- How can an object made of small pieces be disassembled and made into a new object?

Model-Buildings

Achievement Levels	1	2	3
Model (x1)	Model did not represent a house or structure.	Model somewhat represented a house or structure.	Model represented a very detailed house.
Understanding of Content (x1)	Student did not demonstrate an understanding of any building materials and/or their different properties.	Student somewhat demonstrated an understanding of some building materials and/or their different properties.	Student demonstrated a strong understanding of various building materials while their different properties.
Quality of Work (x1)	Model is not neat or formed.	Model is somewhat neat and relatively formed.	Model is very neat and well built.
Geometric Shapes (x1)	Few shapes are correctly identified.	Some shapes are correctly identified.	All shapes are correctly identified.

5. Literary Connection

Read the story of the Three Little Pigs by Paul Galdone ISBN-13: 978-0899192758 or The Three Little Javelinas by Susan Lowell ISBN-13: 978-0873585422. You may choose to read both and have children compare the different situations. Have a group discussion about the different materials that are used to construct different houses. As a small group activity, conduct experiments constructing a house made out of paper, straws or recycled materials. This is a fun activity to observe how different materials work to support a structure. Make sure that you record and discuss all observations and/or evidence gathered from this experiment.

- What are different materials that can be used to build homes?
- Which materials are stronger for building?
- Which materials would you use to build a home where you live?

Literary Connection-Buildings

Achievement Levels	1	2	3
Participation (x1)	Student does not participate in discussion and does not offer any observations about either books read in class.	Student participates very little in discussion and does not offer any observations about either books read in class.	Student participates often in discussion and adds several observations about the books read in class.
Literacy Skills (x1)	Student is not able to recount any details or answer any questions related to story/stories.	Student is somewhat able to recount details and answer some questions related to story/stories.	Student is able to recount many details and can answer several questions related to story/stories.
Compare and Contrast(if both stories are read to class) (x1)	Student was not able to participate in comparing or contrasting the two stories.	Student was somewhat able to participate in comparing or contrasting the two stories.	Student was an active participant in offering comparisons and contrasts between the two stories.

6. Journal Prompt

Suggested final product:

Explain what you learned about building and what building materials are used and why.

- What did you learn about buildings and the materials that are used?
- Why are certain building materials used more than others?
- What is unique about the building that you live in?

Journal Prompt-Buildings

Achievement Levels	1	2	3
Content (x1)	Response contains a limited amount of accurate, factual information.	Response contains some accurate, factual information about the topic.	Response contains accurate, factual information about the topic.
Conventions(if response is written) (x1)	Few sight words are spelled correctly and lacks phonetic construction of unknown words. No capitalization or punctuation used.	A majority of sight words are spelled correctly. Demonstrates an attempt at phonetic construction of unknown words. Minimal capitalization and/or punctuation are used.	Few or no errors in spelling of sight or unfamiliar words. Capitalization and simple punctuation are used.
Printing (x1)	Writing or printing cannot be read.	Writing or printing is somewhat difficult to read.	Writing or printing is very neat and easy to read.